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ABSTRACT

The Wechsler Intelligence Scale for Children--Revised and the Wechsler Adult Intelligence Scale--Revised were administered in a conterbalanced design to 14 educable mentally handicapped 16-year-olds. Verbal, Performance, and Full Scale IQ scores were compared. Correlations and matched t-tests were computed and the results indicated that Verbal and Full Scale IQ scores were not equivalent. Results conformed to previous findings across Wechsler Scales for this subject group and suggested differences between the two tests among 16-year-olds with below normal intelligence. Findings further suggested the possibility that differential classification and placement may be associated with selection of a particular Wechsler scale. (Author/CL)

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Comparability of WISC-R and WAIS-R IQ Scores With Educable Mentally Handicapped Adolescents

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Comparability of WISC-R and WAIS-R IQ Scores With Educable Mentally Handicapped Adolescents

Intelligence tests have long been used in elementary and secondary schools to aid in making decisions concerning students' programming needs. Frequently an IQ range is given as a determinant of eligibility for special programs, as is often the case with programs for educable mentally handicapped (EMH) children. While pleas have been made for the utilization of all available facts in this decision as in Sattler (1974), IQ scores are probably the single most important determinant for placement in EMH programs. Traditionally, the Wechsler Intelligence Scale for Children (WISC), and more recently, the Wechsler Intelligence Scale for Children-Revised (WISC-R) have been used for children up to 16 years, 11 months, 30 days. An overlap exists in the 16-yr-old range with the adult versions of the Wechsler scales, the Wechsler Adult Intelligence Scale (WAIS) and its newer version, the Wechsler Adult Intelligence Scale-Revised (WAIS-R). Wechsler (1974) suggests that "the examiner should choose the scale that is most appropriate for his purposes" (p. 53), however a review of the literature reveals that with lower-functioning children there has been a significant difference between scores obtained on the WISC-R and the WAIS.

Simpson (1970) tested 120 16-yr-olds who had previously

scored below 90 and found significantly higher WAIS vs. WISC scores on Verbal IQ, Performance IQ, and Full Scale IQ with a greater disparity for blacks than for Anglo or Mexican-Americans. Hannon and Kicklighter (1970) found higher WAIS scores for a less-than-average-IQ group, and higher WISC scores for average and above-average IQ groups. They noted that intertest differences may be masked when groups of varying intellectual levels are combined in a reliability sample. This masking effect may have operated on a study by Ross and Morledge (1967) who found no significant difference between WISC and WAIS scores for a group of 30 16-yr-olds with mean IQs of 99.6 (WISC and 102 (WAIS). Walker and Walker (1972) designed a study to analyze WISC/WAIS differences with regard to test-retest interval, sex, and interactions. They used a sample of 50 subjects with previous WISC Full Scale IQ scores between 50-79. They found no main effect of sex or test interval or interactions to account for a significant difference found between WAIS and WISC IQs and concluded problems with WAIS standardization.

More recently, in a study involving the WAIS and WISC-R, Craft and Kronenberger (1979) found significantly higher WAIS scores for 30 16-yr-old EMH students on Verbal IQ, Performance IQ, and Full Scale IQ. Their study may have been effected by not varying the order of the tests (WISC-R first) in a test-retest design with an average interval

of 37 days. Nagle and Lazarus (1979) controlled for this by counterbalancing the order of presentation. They tested a group of 30 16-yr-old EMH students (IQ 55-75) and found mean WAIS Verbal, Performance, and Full Scale IQs to be higher at the .001 level of significance.

The 1981 revision of the adult scale, the Wechsler Adult Intelligence Scale-Revised, will inevitably replace the WAIS in clinical use. Wechsler (1981) states that approximately 80% of the items on the WAIS-R are retained from the WAIS with either slight or no modification (p. 11). A correlational study of the WISC-R and WAIS-R scaled scores and IQs is included in the WAIS-R Manual (p. 48), however the sample used for this study obtained mean IQs of 101.0 (WAIS-R) and 101.9 (WISC-R) and hence is subject to the masking effect noted by Hannon and Kicklighter (1970). Indeed, Wechsler (1981) claims only that "these very small differences suggest that the WAIS-R and the WISC-R yield equivalent IQs for normal 16-yr-olds" (p. 49). Further research will be needed to demonstrate the comparability of the WAIS-R and the WISC-R at different intellectual levels, as conflicting results on these tests will inevitably lead to confusion and problems with programming decisions in school settings.

It is clear from reviewing the relevant literature that the child and adult versions of the Wechsler scales

have not yielded comparable IQs for 16-yr-olds in the below average range of intelligence. Until demonstrated otherwise, it is to be expected that this discrepancy exists also between the WISC-R and the WAIS-R for 16-yr-olds in the 50-70 IQ score range.

Method

Subjects. The subjects were 8 male and 6 female EMH students between the ages of 16 years, 0 months, and 16 years, 11 months. All subjects were chosen from public school special education resource classes. Guidelines for inclusion in these classes are a measured level of intellectual functioning between two and three standard deviations below the mean (Wechsler or Stanford-Binet), sub-average performance on an individually administered standardized achievement test, and a social quotient of 84 or below on the Vineland Social Maturity Scale or a percentile score below 50 on the public school version of the AAMD Adaptive Behavior Scale. Re-evaluations are conducted at least every three years. Parental permission forms were given to all Brevard County, Florida EMH students, and all students for whom parental permission could be obtained were included in the study.

Procedure. The subjects were randomly assigned to an order of presentation group (group A, WISC-R/WAIS-R, group B, WAIS-R/WISC-R) in a counterbalanced design to

control for practice effects. Seven subjects received each order of presentation. The tests were administered at the school where each student was in attendance. Testing was done on two occasions for each student, with the interval between tests varying between 7-14 days (group A mean interval 11 days, group B mean interval 11.57 days). The tests were administered and scored according to instructions in the test manuals, and all tests were given by one examiner, a graduate student under supervision. The 11 WAIS-R subtests and the corresponding WISC-R subtests were administered, with the WISC-R Mazes subtest not included in the study.

Results

The WAIS-R and WISC-R scores for all 14 subjects were compared on all 11 subtests and on all 3 IQ scores. Correlations were computed and matched t-tests were used to determine significance of differences between the WISC-R and WAIS-R scores. The mean scores, correlations and t-scores are shown in Table 1. The results of the t-test analysis indicate that the WAIS-R yielded significantly higher Full Scale ($t(13)=-3.52$, $p.<.005$) and Verbal ($t(13)=-8.95$, $p.<.001$) IQ scores. The mean subtest score was significantly higher on the WAIS-R for the Comprehension subtest ($t(13)=-2.62$, $p.<.05$) using a two-tailed test. In general, the verbal subtests tended to be higher on the WAIS-R and the performance subtests tended to be higher on the WISC-R,

with the exceptions of the Information and Block Design subtests which reversed this trend.

In the two order of presentation groups, the means and standard deviations were as follows. For group A (WISC-R/WAIS-R) the mean for the WISC-R was 59.71 (SD=11.11), for the WAIS-R, 68.85 (SD=6.31). For group B (WAIS-R/WISC-R) the mean for the WISC-R was 69.57 (SD=3.95), for the WAIS-R, 72.14 (SD=.90). Comparisons between the group A and group B WISC-R scores were non-significant, as were the WAIS-R scores for groups A and B.

Discussion

The present findings indicate that for 16-yr-old EMH students, the WAIS-R generally yields higher Full Scale and Verbal IQ scores. The mean difference for the Full Scale IQ scores was nearly 6 points, and a comparison with the DSM-III levels of retardation indicate that this might result in changes in classification for at least 8 of the 14 students (57%) in this study. Depending on other factors like academic skills and communication skills, similar results might be expected with respect to classroom placement.

A tendency was noted for those subjects with lower WISC-R scores to have greater differences between their Full Scale test scores. As this result would be subject to regression toward the mean, it is not clear whether this

indicates a tendency for larger between-test differences at lower intellectual levels.

A strong practice effect was expected with the short test-retest interval, and in general this effect was stronger with the WISC-R, although not at a significant level. A possible explanation for this may involve the number of successful responses required for comparable scores on the two tests.

It is worth noting that the raw scores on the Digit Span subtest were nearly identical across the two tests, however they led to scaled scores which were markedly different. The WAIS-R scaled scores were generally higher on this subtest, which is essentially identical on both the WISC-R and WAIS-R. This is suggestive of normative discrepancies between the tests and is clearly a point for further study.

It is clear from present results that differences exist for 16-yr-olds at lower intellectual levels between WISC-R and WAIS-R Full Scale and Verbal IQ scores. This does not provide the psychologist with information to guide his or her selection of test instrument. Information on the predictive validity of the two scales on variables such as school achievement and vocational success are necessary to make test selection systematic.

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Table 1

Means, Correlations, and t-scores

	WISC-R Mean	WAIS-R Mean	Correlation	t-score
FSIQ	64.64	70.50	.83	-3.52***
VIQ	60.00	70.78	.77	-8.95****
PIQ	73.78	72.86	.79	.45
Voc	3.43	3.43	.33	.00
D Sp	4.29	4.86	.82	-1.96
Arith	4.50	4.57	.67	-.19
Comp	3.07	3.86	.48	-2.62**
Sim	3.50	3.86	.40	-1.33
P C	6.57	5.64	.59	1.60
P A	7.36	6.21	.74	2.00*
B D	4.21	5.07	.70	-1.71
O A	5.86	5.36	.20	.85
D Sym	6.50	6.00	.85	1.02

*$p < .10$ (13 df, two-tailed)

**$p < .05$ (13 df, two-tailed)

***$p < .005$ (13 df, one-tailed)

****$p < .001$ (13 df, one-tailed)

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Abstract

The Wechsler Intelligence Scale for Children-Revised and the Wechsler Adult Intelligence Scale-Revised were administered in a counterbalanced design to 14 EMH students of 16 years age. Verbal, Performance, and Full Scale IQ scores were compared. Correlations and matched t-tests were computed and the results indicated that Verbal and Full Scale IQ scores were not equivalent. These results conform to previous findings across Wechsler scales for this subject group and suggest differences between the two tests among 16-yr-olds in the below normal ranges of intelligence. This presents the possibility that differential classification and placement may be effected by selection of a particular Wechsler scale.